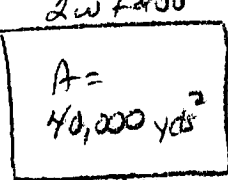


Unit 8 Day 5 p 125-127: 1-4 (all), 6-18 (even) assignment

① A ② C ③ D ④ B

⑤



$$A = 40,000 \text{ yds}^2$$

let w = width length = $2w + 200$

$$A = lw$$

$$40000 = (2w + 200)w$$

$$40000 = 2w^2 + 200w$$

$$0 = 2w^2 + 200w - 40000$$

$$0 = 2(w^2 + 100w - 20000)$$

$$0 = 2(w - 100)(w + 200)$$

$$w - 100 = 0 \quad w + 200 = 0$$

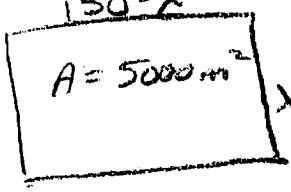
$$w = 100 \quad w = -200$$

width = 100 yds

$$\text{length} = 2w + 200 = 2(100) + 200$$

$$\text{length} = 400 \text{ yds}$$

⑥



$$A = 5000 \text{ m}^2$$

$$A = lw$$

$$5000 = (150 - x)(x)$$

$$5000 = 150x - x^2$$

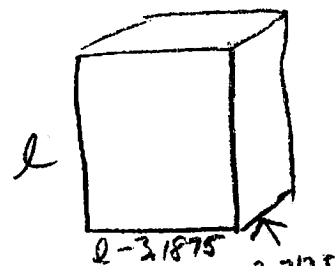
$$x^2 - 150x + 5000 = 0$$

$$(x - 100)(x - 50) = 0$$

$$x - 100 = 0 \quad x - 50 = 0$$

$$x = 100 \quad x = 50$$

Dimensions of garden is $100 \text{ m} \times 50 \text{ m}$



⑦

$$SA = 2(\pi r^2) + (h)(2\pi r)$$

$$600 = 2(\pi r^2) + 4.25(2\pi r)$$

$$600 = 2\pi r^2 + 8.5\pi r$$

$$0 = 2\pi r^2 + 8.5\pi r - 600$$

$$0 = 2(\pi r^2 + 4.25\pi r - 300)$$

$$a = \pi \quad b = 4.25\pi \quad c = -300$$

$$r = \frac{-4.25\pi \pm \sqrt{(4.25\pi)^2 - 4(\pi)(-300)}}{2\pi}$$

$$r = \frac{-13.35 \pm \sqrt{178.2697 + 3769.91}}{6.2831}$$

$$r = \frac{-13.35 \pm 62.83}{6.283}$$

No Negative dimensions

⑧

$$V = lwd$$

$$182.742 = l(l - 3.1875)(2.3125)$$

$$182.742 = (l^2 - 3.1875l)(2.3125)$$

$$182.742 = 2.3125l^2 - 7.3712l$$

$$0 = 2.3125l^2 - 7.3712l - 182.742$$

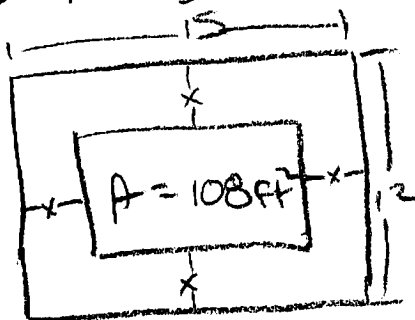
$$a = 2.3125 \quad b = -7.3712 \quad c = -182.742$$

$$l = \frac{7.3712 \pm \sqrt{(-7.3712)^2 - 4(2.3125)(-182.742)}}{2(2.3125)}$$

$$l = -7.437 \text{ or } 10.625$$

length is approximately 10.625 in

⑨ $A = lw$



$$108 = (12 - 2x)(15 - 2x)$$

$$108 = 180 - 24x - 30x + 4x^2$$

$$108 = 180 - 54x + 4x^2$$

$$0 = 4x^2 - 54x + 72$$

$$0 = 4(2x^2 - 27x + 36)$$

$$0 = 4(2x - 3)(x - 12)$$

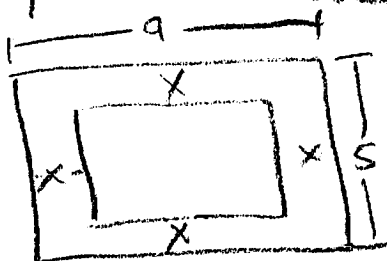
$$2x - 3 = 0 \quad | \quad x - 12 = 0$$

$$2x = 3 \quad | \quad x = 12$$

$$x = \frac{3}{2} \quad \uparrow \quad \text{eliminate}$$

the border would be $1\frac{1}{2}$ feet

⑩



Area of Border = Area of entire garden - Area of center

$$24 = (9)(5) - (9-2x)(5-2x)$$

$$24 = 45 - (45 - 28x + 4x^2)$$

$$24 = 45 - 45 + 28x - 4x^2$$

$$4x^2 - 28x + 24 = 0$$

$$4(x^2 - 7x + 6) = 0$$

$$4(x - 6)(x - 1) = 0$$

$$x - 6 = 0 \quad | \quad x - 1 = 0$$

$$x = 6 \quad | \quad x = 1$$

border can't be wider than width

She has enough flowers for a 1ft border.

⑪ $A = s^2$

$$P = 4s$$

$$s^2 = 4s$$

$$s^2 - 4s = 0$$

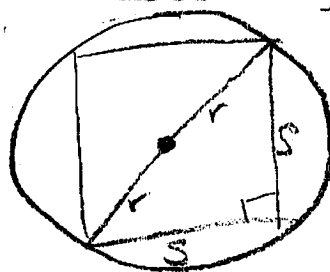
$$s(s - 4) = 0$$

$$s = 0 \quad | \quad s - 4 = 0$$

$$s = 4$$

Side of square has a length of 4

⑫



The spray of the H_2O must cover to the corners of the lawn

$$A = s^2$$

$$800 = s^2$$

$$\sqrt{800} = s$$

$$20\sqrt{2} = s$$

The radius is 20 ft.

$$a^2 + b^2 = c^2$$

$$s^2 + s^2 = (2r)^2$$

$$(20\sqrt{2})^2 + (20\sqrt{2})^2 = 4r^2$$

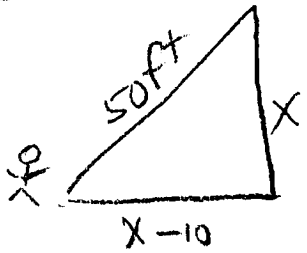
$$800 + 800 = 4r^2$$

$$1600 = 4r^2$$

$$400 = r^2$$

$$\pm 20 = r$$

(13)



$$c^2 = a^2 + b^2$$

$$50^2 = (x-10)^2 + x^2$$

$$2500 = x^2 - 20x + 100 + x^2$$

$$0 = 2x^2 - 20x - 2400$$

$$0 = 2(x^2 - 10x - 1200)$$

$$0 = 2(x+30)(x-40)$$

$$\begin{array}{l|l} x+30=0 & x-40=0 \\ x=-30 & x=40 \end{array}$$

The kite is 40 ft above ground

(14)

$$c^2 = a^2 + b^2$$

$$(2h+3)^2 = 12^2 + h^2$$

$$4h^2 + 12h + 9 = 144 + h^2$$

$$3h^2 + 12h - 135 = 0$$

$$3(h^2 + 4h - 45) = 0$$

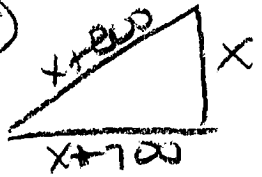
$$3(h+9)(h-5) = 0$$

$$h+9=0 \quad | \quad h-5=0$$

$$h=-9 \quad | \quad h=5$$

Height of
Duck is 5 ft

(15)



$$c^2 = a^2 + b^2$$

$$(x+800)^2 = x^2 + (x+700)^2$$

$$x^2 + 1600x + 640000 = x^2 + x^2 + 1400x + 490000$$

$$0 = x^2 - 200x - 150,000$$

$$0 = (x-500)(x+300)$$

$$\begin{array}{l|l} x-500=0 & x+300=0 \\ x=500 & x=-300 \end{array}$$

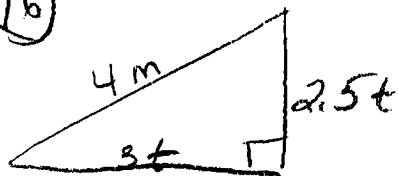
Short leg = 500 yd

long leg = 500 + 700 = 1200 yd

hypotenuse = 500 + 800 = 1300 yd

Total length of walkway is 3000 yds

(16)



	Rate mph	time h	distance miles
Chris	2.5	t	$2.5t$
Josh	3	t	$3t$

let t = time they are able to talk

$$c^2 = a^2 + b^2$$

$$4^2 = (2.5t)^2 + (3t)^2$$

$$16 = 6.25t^2 + 9t^2$$

$$16 = 15.25t^2$$

$$t^2 = 1.049$$

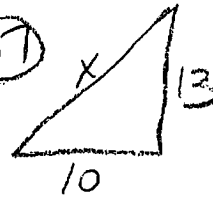
$$t = \pm 1.024$$

$$1.024 \times 60$$

They will be able to talk for a bout 61 min.

Day 5 continued

(17)



$$c^2 = a^2 + b^2$$

$$c^2 = 10^2 + 13^2$$

$$c^2 = 100 + 169$$

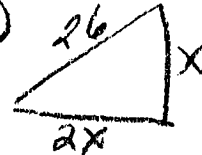
$$c^2 = 269$$

$$c = \pm 16.4$$

Discard \ominus

Round up to nearest foot
Thee would need a
17ft ladder.

(18)



$$x^2 + (2x)^2 = 26^2$$

$$x^2 + 4x^2 = 676$$

$$5x^2 = 676$$

$$x^2 = 135.2$$

$$x = \pm 11.6$$

Discard \ominus

long leg 23.3 "
Short leg 11.6 "

$$2 \cdot \sqrt{135.2} = 23.3$$